

CLAIMS

What is claimed is:

1. A system for scanning objects comprising:
 - a linear array sensor, adapted to detect light input signals;
 - a lens optically connected to the linear array sensor, the lens adapted to receive and transmit an optical image located in a field of view along a lens axis to the linear array sensor;
 - a light source which generates an illumination stripe in general linear alignment with the lens axis; and
 - a cylindrical lens positioned between the light source and an object to be scanned, the cylindrical lens adapted to collect, transmit and focus light from the light source to form the illumination stripe.
2. The system for scanning objects of claim 1, further comprising:
 - a focusing device connected to the lens;
 - an actuator connected to the focusing device; and
 - a range finder connected to the actuator, the range finder adapted to determine a target object distance from the lens and to generate and transmit target object positioning data to the actuator.
3. The system for scanning objects of claim 1, further comprising:
 - a light source focusing mechanism connected to the cylindrical lens, the focusing mechanism adapted to move the cylindrical lens to focus the illumination stripe at a desired depth of field along the axis.

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4. The system of claim 1, wherein the light source includes multiple linear rows of light emitters.

5. The system for scanning objects of claim 4, further comprising:
a controller connected to the light source, the controller adapted to energize and de-energize selected linear rows of the light emitters.

6. The system for scanning objects of claim 1, wherein the cylindrical lens is a Fresnel lens.

7. The system for scanning objects of claim 1, wherein the linear array sensor is a CCD image sensor.

8. The system for scanning objects of claim 1, wherein the cylindrical lens has a center slit.

9. The system for scanning objects of claim 1, wherein the light source is an LED array.

10. The system for scanning objects of claim 9, wherein the LED array comprises very high intensity red LEDs.

11. The system for scanning objects of claim 1, wherein the light source is a semiconductor laser array.

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12. The system of claim 1, wherein the light source is coplanar with the linear sensor array and the lens axis.

13 The system for scanning objects of claim 1, wherein the light source is moveable, and is located parallel to the linear sensor array in a position offset from the lens axis.